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# CAR RADIO---'40 Style

By Jack Shulman

ALL America is talking about the new 1940 automobiles. In themselves the cars provide plenty to talk about. Not quite so widespread is conversation about the radios to be found in these cars; yet to those who can appreciate these radios, both from the standpoint of appearance and performance, they, too, in themselves, provide plenty to talk about.

Put yourself in the front seat of any of the new cars which has, in addition to all the usual advertised features of appeal, a radio. Before turning it on, pause to look at it a moment. Think back if you can to the time when you rode in a car whose owner was so venturesome as to purchase one of the new-fangled auto sets that just appeared on the market. If you can recall having barked your shins on a clumsy steel box underneath the dash when you stretched your legs, you will be gratified to see that a place has been made for the new radios where they will never be in the way. Placing the complete assembly in the center of the instrument panel not only provides access from either side, but also allows the full beauty of symmetry in the appearance of the panel.

Turn the set on and watch as the slide-rule dial pointer moves swiftly and silently to a station setting at the touch of a push button. Listen and you will be amazed at the full, rich, lifelike tone quality of the eight-inch electrodynamic speaker behind the chrome-plated grill bars. Start the engine and put the car in motion, over rough roads, along trolley lines, anywhere. Think back a few years again. If you can recall having experienced a radio program suddenly turn to silence on hitting a bump, or often having had to listen to a curious mixture of program and boiler-factory noise as the old car moved around, you will probably be able to grasp the full significance of the tremendous engineering advancement in car radio design and construction in the past few years.

The 1940 car radio to be described is appropriately labeled "Super DeLuxe" by the manufacturers of the car in which it is installed. The sets of other car manufacturers are designed and built along similar lines, and it is not the purpose here to make comparisons but rather to bring out the important engineering developments which make the automobile radio of 1940 the quality instrument that it is.

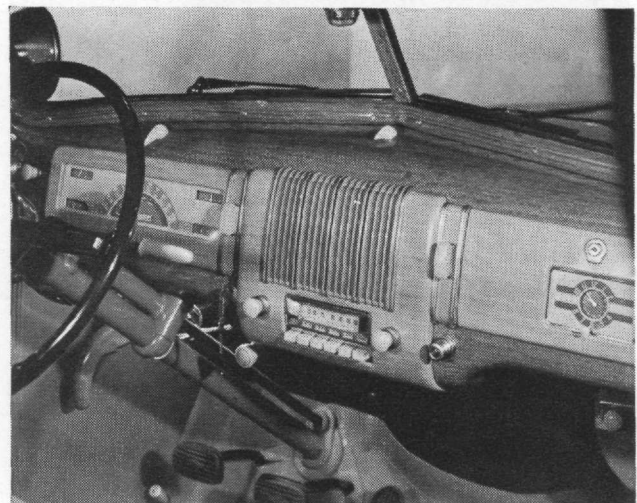
Electrical push-button tuning, while not a new innovation in auto radios, is now a highly perfected one, and the luxury of this advanced method can hardly be over-emphasized. In this particular set the setting of push buttons has been simplified to a mere twist of the wrist. No tools are required, it being merely necessary to push the button and while holding it down, tune in the desired station with the manual tuning knob. When the station is tuned in accurately, the button is released and the station is set. A single solenoid coil does the work of tuning in stations. When a push-

button is pressed, a special electro-magnetic clutch disengages the high ratio manual tuning gear train, thus eliminating the spinning of the manual tuning knob on the front of the instrument panel. Rugged mechanical construction throughout the push-button tuning system insures a high degree of tuning accuracy.

Extra large knobs are used for manual tuning and volume control, and the tuning shafts are attached with a key to the knobs so as to eliminate the possibility of breaking or bending in shipment or in use. The means of preventing use of the radio by unauthorized persons is simple and requires no special lock. A light pull on the knobs disconnects them from the chassis, and they can be placed in the glove compartment, locking the compartment when desired. The station call-letters above the buttons are illuminated through call-letter holders made of a special lucite. The dial itself incorporates a non-glare feature which, together with the large numerals, makes it easy to read at a considerable distance.

One of the outstanding features in this particular model radio is the push-button audio range control, the button on the extreme left. By depressing this button, any of four tone ranges is obtainable—Speech, Music, Soft or Bass. These words are illuminated on the dial so that the driver can tell at a glance which range he is using. The resistance-capacity networks used in connection with this control are considerably more elaborate than the tone control system in the average home broadcast receiver. Use of the "Speech" setting brings out the clarity expected when listening to a speaking voice. "Music" brings out the normal tones which can be expected from a dance orchestra. "Soft" attenuates some of the high frequencies and gives an even, moderate tone. "Bass" emphasizes the low frequencies, which are often desired when listening to orchestrations.

## The Radio Installed



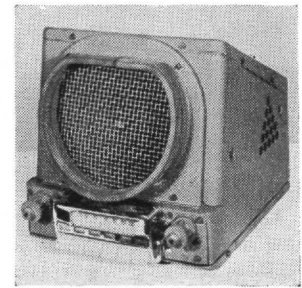
Courtesy Chevrolet Motor Car Corp.

Eight of the new bantam type glass tubes are used in this receiver in a superheterodyne circuit. These tubes are smaller in size than regular glass tubes, being only about three inches high and slightly over an inch in diameter. They have been painstakingly engineered and tested to insure electrical stability and efficiency. What looks like a ninth tube is actually the oscillator coil, hermetically sealed in a glass bulb which plugs into a socket, exactly in the manner of an ordinary tube. The extreme variations in temperature and humidity to which an auto radio is subjected have long presented one of the most difficult engineering problems to manufacturers. By the use of this hermetically sealed coil, humidity drift, which occurs when the ordinary type of exposed coil absorbs moisture, is eliminated. A special temperature compensating condenser used in conjunction with this coil eliminates the effect of mistuning due to extreme temperature variations.

A special antenna compensating condenser is used to match the type of antenna used to the set. This condenser and a high-gain type antenna coil assure maximum efficiency regardless of what type antenna may be preferred. There are two connections on the outer part of the case for either a whip, turret-top, or under-car antenna.

The receiver circuit incorporates a new type of automatic volume control which gives highly desirable volume control characteristics. Past practice in automatic volume control circuits has been to apply the control voltage only to radio frequency amplifier stages of the receiver. In this new circuit the control voltage is applied to both radio frequency and audio frequency amplifier stages. The significant result to the user is

### The Unit is Compact



Courtesy Chevrolet Motor Car Corp.

that when tuning from station to station, the volume of the set remains practically constant regardless of volume control setting. Two high-efficiency beam power tubes are used in the audio output stage to supply more-than-ample power to the eight-inch high fidelity speaker.

In designing this new radio, much consideration was given to accessibility. The entire unit is enclosed in a case of heavy gauge metal and is well cushioned to eliminate the possibility of rattles. The case is shaped so as to fit snugly behind the dash. When the set is installed in position, two simple catches on the case can be released to bring the chassis into view for easy adjustment or repair without removing the case. Thus the inconvenience of the past in taking out the entire set for inspection of tubes and chassis is done away with.

All in all, the auto radio of 1940 as exemplified by the "Super DeLuxe" model described, is "tops" in both looks and performance. In every respect it is a radio engineering job worthy to be a part of as fine an automotive engineering job as the 1940 car.